NETS Briefing Package

The Development of a Regional Routing Model

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Agenda - Regional Routing Model

- Setting the Stage
- Current Work Efforts
  - Regional Routing
  - Port Study
  - GIS
- Example from FAF

How Can One Look At The Maritime (Navigation, Freight) Industry?

- Inventory Functions – physical characteristics, numbers of facilities, labor, equipment
- Engineering – structural integrity, deterioration
- Operational Reliability – delay, closures
- Economical and Financial – Cost/Benefit Analysis, capital and financial resources
- Safety and Security – number of accidents, exposure
- *Non Navigational Users* – Recreation, flood control, hydropower, Fish and Wildlife, water supply

Navigation Analysis Is Complicated:

- Limited Funds, Expertise or study time
- Conflicting and incompatible data sources
- Data timeliness
- Transportation is a very complex system
- Transition from Construction to O&M
- Number of Corps economists in field
- Lack of national policy on infrastructure

We want data, tools and guidance to make better decisions.

- Infrastructure location and capacity of terminals, channels, locks and dams, ports, etc.
- Vessel fleet type and use
- Origins and Destinations to examine corridors and economic relationships
- System performance – Time, Congestion, Delay
- Security and Inspection Activities

No ideal database or framework exists …

These Efforts Raise Many Questions

- What are the correct tools and information?
- Will these tools raise the awareness to program projects that are beneficial to freight? Do they help people make informed decisions?
- What tools and data elements are still needed?
- Can tools be developed to balance the wide range of border crossing needs?
- What is needed to provide additional and timely understanding of markets and trends?
- Are we providing accurate information to satisfy or anticipate future policy, program, legislative requirements?

How do we move from data into analysis
while providing useful information?

Three Main Work Items

- Port Competition and Characteristics
- Regional Routing Model
- GIS Tools for Regional Routing Model

Port Competition and Characteristics

What contributes to a port's competitive position and productivity?

- Incremental Growth
- Stepwise Growth

Can these factors be quantified?

What correlation exists between a port's success and actions by the Corps? The actions of other external actors?

What are the linkages of inland systems and port competition?

Port Market Paper

- Working Outline
  - Trends in Port Shares over time, commodity and region
  - Status of port financing and investment
  - Changing role of port ownership and operations
  - Literature review of assessing market relationships by commodity, vessel type, and region for various models.

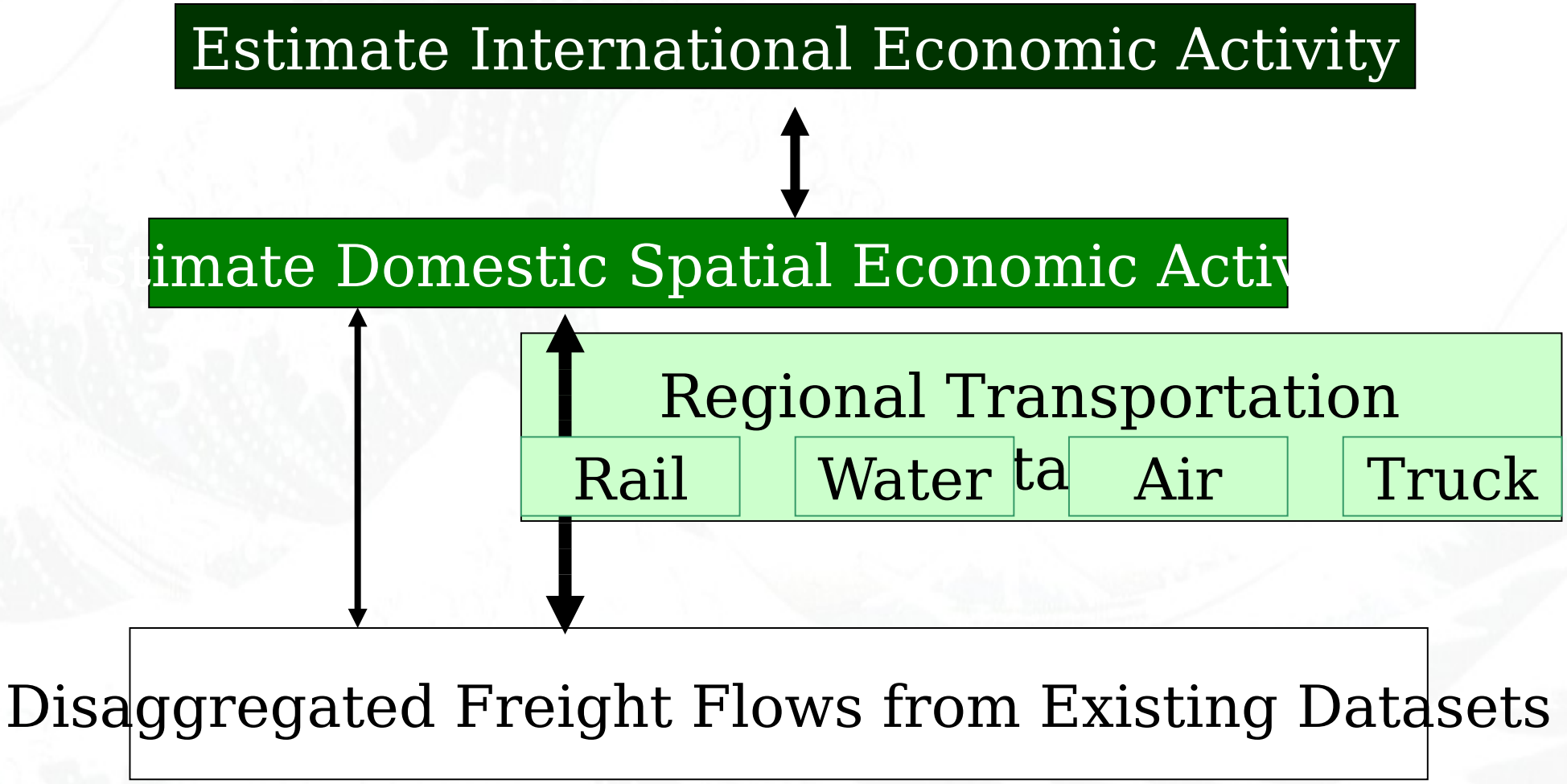
What Answers Should a Regional Routing Model Answer?

- What is the volume of traffic through a port area?
- How does changing the cost structure of a port change its relationships to other ports, either within a region or the nation,
- How does changing market patterns influence port activity.
- Challenge?
  - Corps Navigation programs becoming increasingly intermodal or have intermodal implications
  - Infrastructure related to freight mobility and economic recognized in current policy discussions
  - Corps (and rest of world) have little data or mixed analytical skills on models or corridor traffic comparisons.

ORNL SOW For Regional Routing Model

- Task 1. Prepare Materials for the Peer Support Process
- Task 2. Update Documentation of the ORNL Multi-modal Transportation Network and Make it Web-Accessible
- Task 3. Develop a Set of Origin-to-Destination Flow Matrices and Assign them to the US Transportation Network
- Task 4. Develop a Set of Regional Transportation Costs for Agricultural Products
- Task 5. Prepare Materials for Midpoint Peer Support Team Review
- Task 6. Evaluate Existing Freight Modal Choice Models
- Task 7. Scenarios Development and Peer Review Meeting

Development of Commodity Database



Geographic Relationships

- Multistate, Multiregional
- State
- MSA, BEA
- MPOs – Counties
- Routing – Infrastructure - Corridors
- Facilities – Terminals (Dock to Dock)

Not all levels are appropriate for various studies

Data Issues

- Annualized Data
- Problems of matching value and tons
- Problems of coordination
- Long Term maintenance and support
- Confidential data (Federal and Private)
- Assignment generalized into daily flows

GIS

Areas of Concern –

- estimate capacity estimates on waterway segments and other modes
- Consistency of Corps GIS sets with other transportation based GIS models
- Need to understand assignment methodology of NDC
- Use and access of GIS in support of Corps planning function
- Compatibility of GIS data standards (ORNL, GSIS, etc.)
- Display issues (Geofreight)
- Meetings-
  - NDC, Vanderbilt, TEC, ESRI

MOU's - Resources and Schedules

- USDA
  - Economic Model this summer
  - Data development and review this summer
- FHWA
  - Regional commodity flow matrix early next year
- Funding
  - At this point, not asking for additional funding.
  - Project depends upon the respective agencies to continuing data and economic model development.
  - Unknown costs associated with funding from "development" to "maintenance" mode born by parent agency.

Peer Review Work – Three Groups

- Non Federal- Port, Port Consultants, TRB Port Committee, Agricultural Reviewer
- USACE Review
- Other Federal agency review

Commodity Flows Affected by the I-40 Bridge Collapse at Webbers Falls, Oklahoma: A Preliminary Assessment

Draft: May 29, 2002

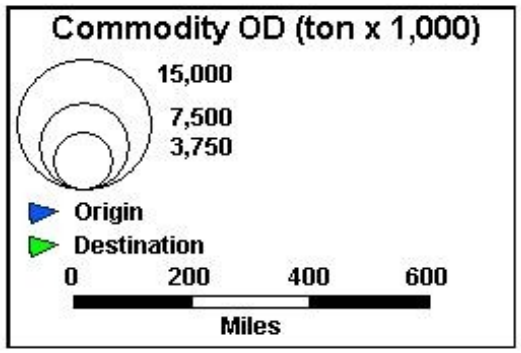
U.S. Department of Transportation

Federal Highway Administration

Origins and Destinations of Commodity Movements Across the I-40 Bridge at Webbers Falls

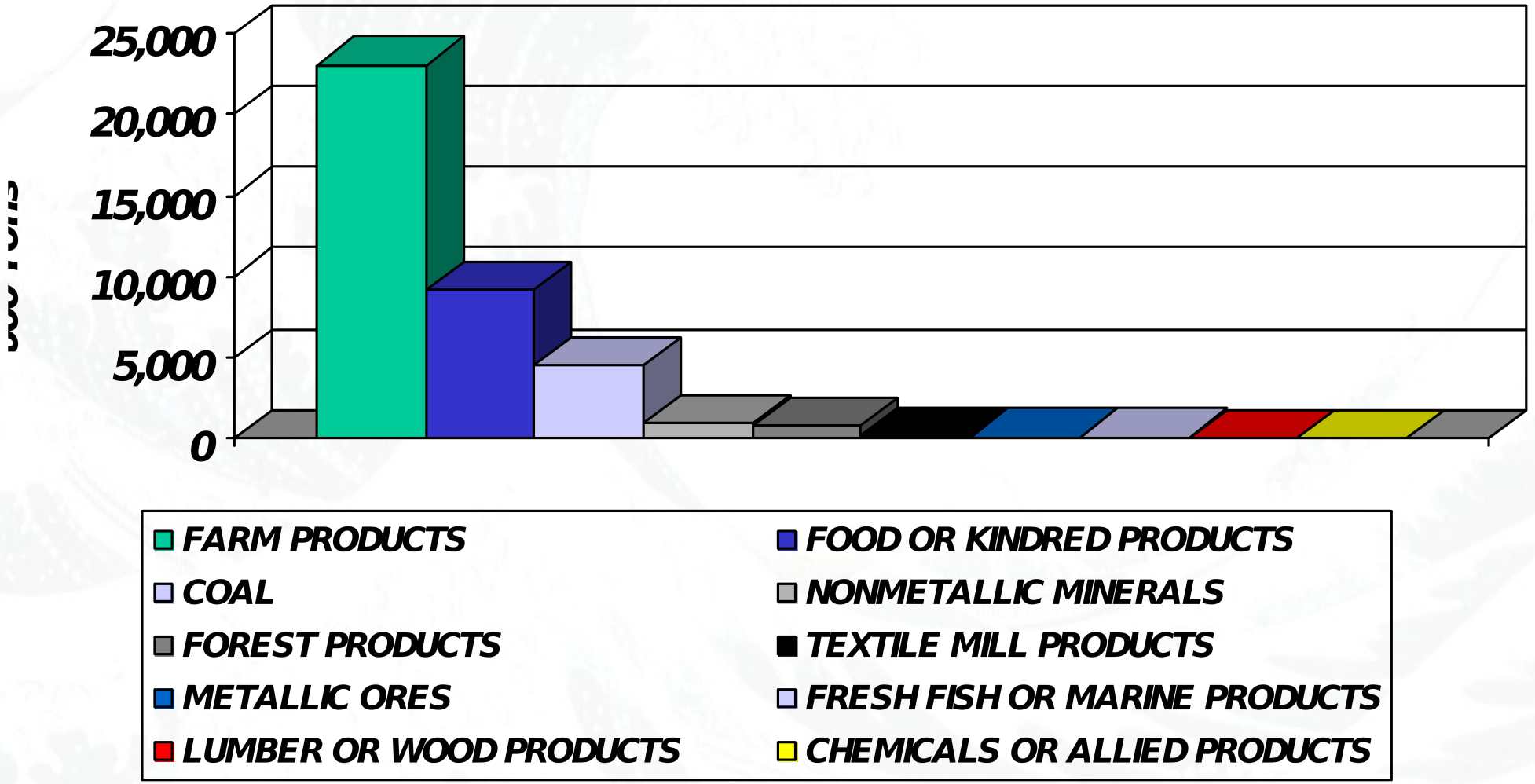
	Tons of Shipments	Value of Shipments	Assignable Truck
Within Oklahoma	8%	1%	11%
From or to Oklahoma	28%	14%	34%
Through Oklahoma	64%	85%	55%

By weight the three biggest commodity movements on I-40 through Webbers Falls are California to Georgia (4.5 million tons), Georgia to Oklahoma (4,1 million tons), and within Oklahoma (3.2 million tons).



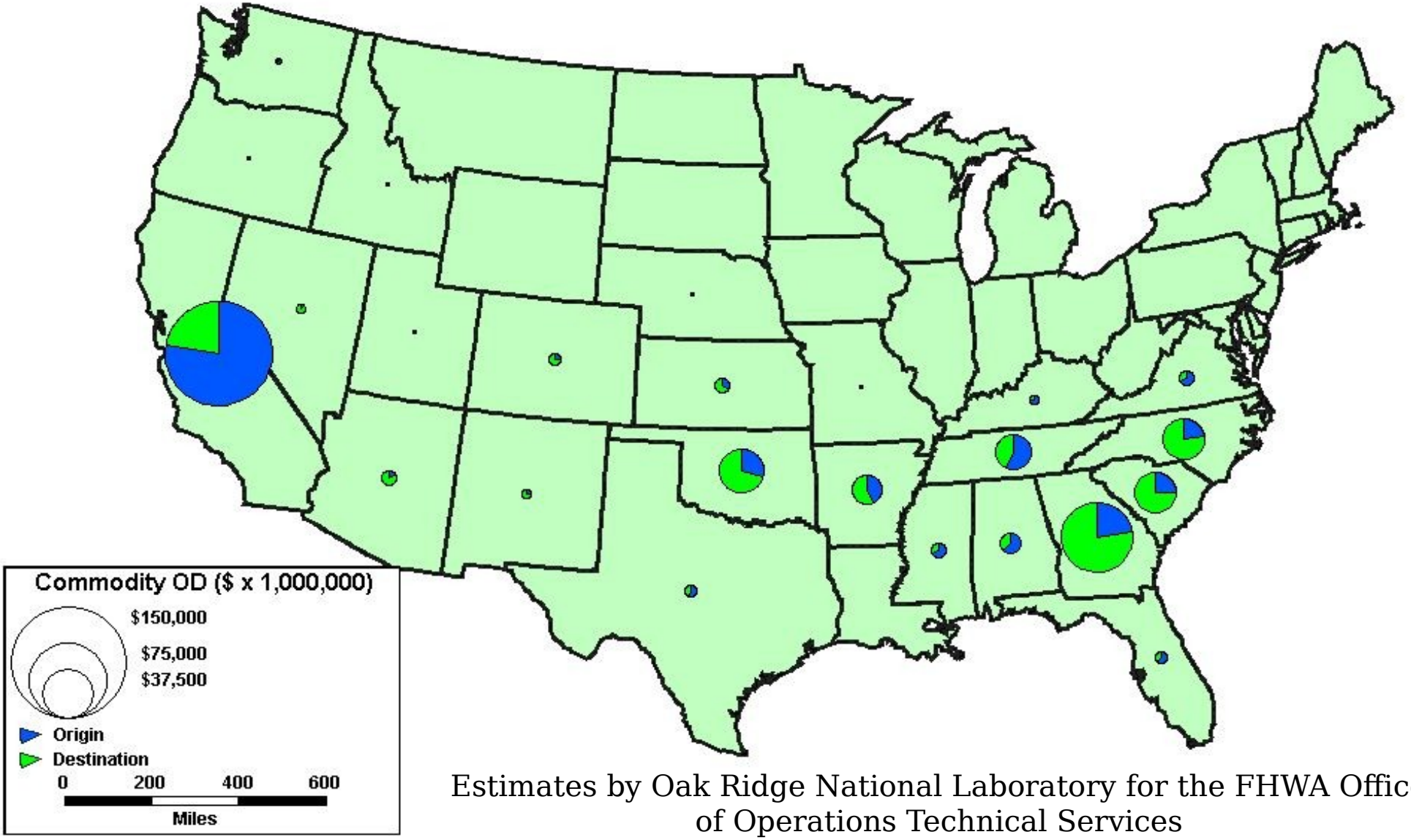
Estimates by Oak Ridge National Laboratory for the FHWA Office of Operations Technical Services

Top Ten Commodities by Weight Crossing the I-40 Bridge at Webbers Falls



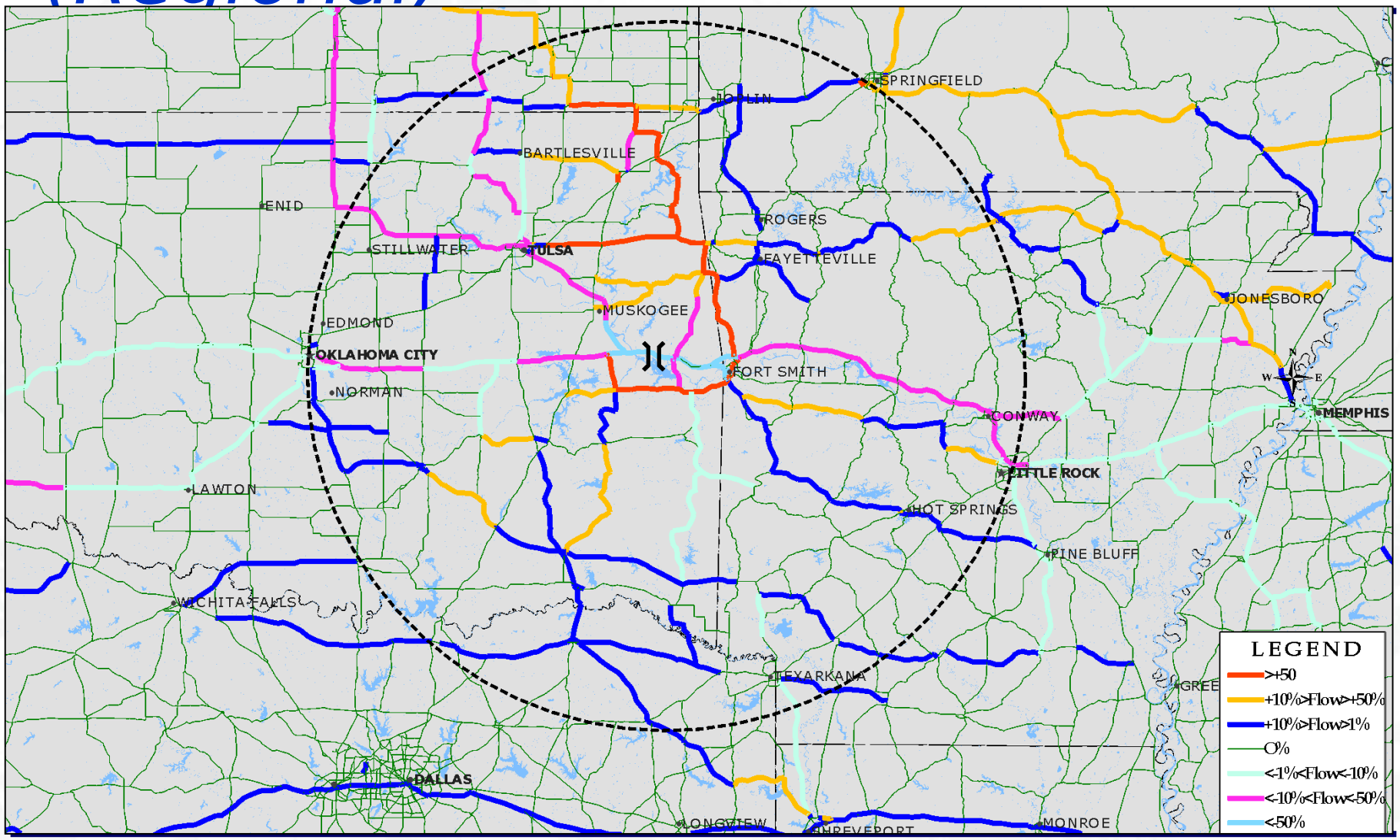
Estimates by Oak Ridge National Laboratory for the FHWA Office of Operations Technical

By value the three biggest commodity movements on I-40 through Webbers Falls are California to Georgia ($49 billion), California to North Carolina ($19 billion), and California to South Carolina ($18 billion).

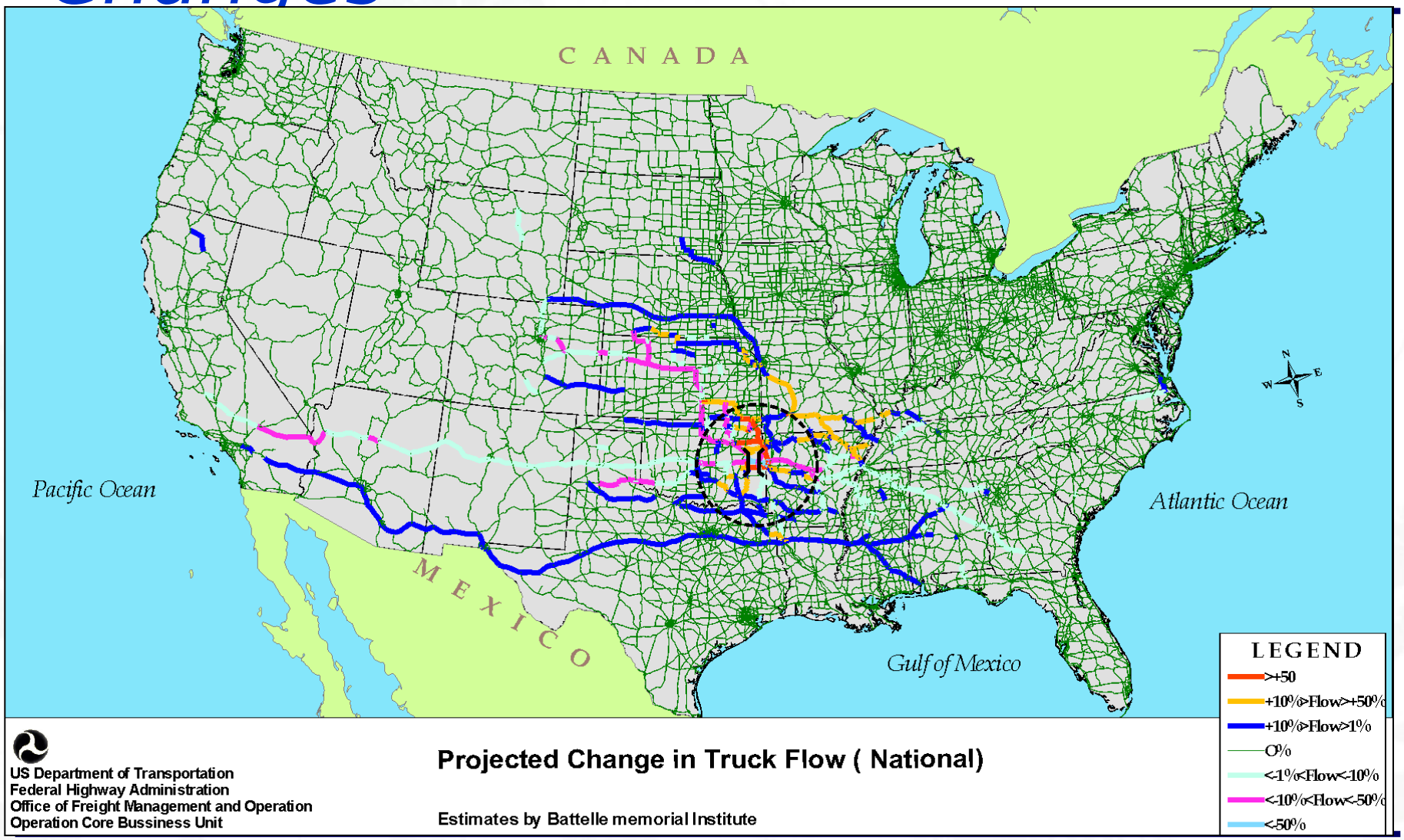


Estimates by Oak Ridge National Laboratory for the FHWA Office of Operations Technical Services

Projected Change in Truck Flow (Regional)



Projected National Truck Flow Changes



Fundamental Questions Concerning Regional Routing Model

- What planning/policy needs remain unanswered or should be answered on a routine basis?
- What data (tools) answers the ongoing policy/planning functions? What data (tools) gaps exist?
- Does the technical expertise to develop and utilize new datasets and analytical tools exist at the appropriate levels?
- Can the Corps use existing partnerships or develop new arrangements to improve both data and analytical capacity?
- Do we wish to share data/tools with others outside of the USACE?
- Are we prepared for the ramifications regarding development/release of these tools?
- Can we develop expertise at all levels?
- *Can we tell the story that Navigation is important? Can we make others confident in telling the same story?*

Conclusion?

- The RRM is:
  - Traffic assignment model
  - Control total for navigation studies
  - Start for Planners and Economists
- Other elements can be linked to support additional studies
  - National/Local Simulation tool
  - Economic analysis (B/C, etc.)
  - Emissions model dataset
  - Pavement and other modal models

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IWR Home page Http://www.iwr.usace.army.mil

NETS Program Http://www.corpsnets.us

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